

Date: Fri, 20 May 94 04:30:28 PDT
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
Errors-To: Ham-Ant-Errors@UCSD.Edu
Reply-To: Ham-Ant@UCSD.Edu
Precedence: Bulk
Subject: Ham-Ant Digest V94 #149
To: Ham-Ant

Ham-Ant Digest Fri, 20 May 94 Volume 94 : Issue 149

Today's Topics:

 an antenna for 69Mhz ??? (2 msgs)
 Baluns and dipoles
 dBd (2 msgs)
 suggestions for superstrong mag mount
 Thanks (was HELP--Antenna design challenge)
 unsubscribe
 Using 50ohm Coax instead of 75ohm
 Why are there no amateur helix antennas? (3 msgs)

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 18 May 1994 15:21:44 GMT
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!pipex!uknet!qmw!sunrae.uel.ac.uk!
rob@network.ucsd.edu
Subject: an antenna for 69Mhz ???
To: ham-ant@ucsd.edu

Could anybody help me with a design for a antenna for 69.300Mhz?
What I am looking for is some kind of beam which is'nt too big
The reson I require a beam is that where I operate the radio, half of
my signal go's out to sea and is wasted.
(if you are wondering about frequency, it's the UK sea cadet net)

Thanks in advance
Rob Smith (G1ZXG)

Date: Wed, 18 May 94 14:09:44 EDT
From: lerc.nasa.gov!kira.cc.uakron.edu!malgudi.oar.net!hypnos!voxbox!
jgrubs@purdue.edu
Subject: an antenna for 69Mhz ???
To: ham-ant@ucsd.edu

-----BEGIN PGP SIGNED MESSAGE-----

rob@sunrae.uel.ac.uk (Rob Smith) writes:

>
> Could anybody help me with a design for a antenna for 69.300Mhz?
> What I am looking for is some kind of beam which is'nt too big
> The reson I require a beam is that where I operate the radio, half of
> my signal go's out to sea and is wasted.
> (if you are wondering about frequency, it's the UK sea cadet net)

Seems to me a beam for your 4 meter band scaled up a few percent
would good.

-----BEGIN PGP SIGNATURE-----

Version: 2.5

iQCVAgUBLdpaNcmzkeX3rfUNAQEGwAP+JTH0n55k0I54/SPPAFMMJUxzWeMDYoLw
z1MhNqdqjkx9v1gnN9VzjMQhlsC+bUmVDMG+44Lcx0BoUUHLrQEHWWcyWoeDSLXH
4JMmU0K6ZQE80a5bXl5Rhrm5b007rpmF8bP95k5c+WYuJa1L14j+pyredY00Cwo
mLuHhF0x2BQ=
=t4FZ

-----END PGP SIGNATURE-----

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+-----+
| Jim Grubs, W8GRT          Voxbox Enterprises   THIS SPACE FOR RENT |
| jgrubs@voxbox.norden1.com 6817 Maplewood Ave.  RATES REASONABLE  |
| Fido: 1:234/1.0          Sylvania, Ohio 43560  Home: 419/882-2697 |
|                           AMATEUR RADIO - The National Park of the Mind |
+-----+
```

Date: 18 May 94 14:47:19 -0800
From: ihnp4.ucsd.edu!news.acns.nwu.edu!math.ohio-state.edu!usc!nic-nac.CSU.net!
vax.sonoma.edu!harrisok@network.ucsd.edu
Subject: Baluns and dipoles
To: ham-ant@ucsd.edu

In article <1994May18.140938.29989@news.vanderbilt.edu>,
PFEIFFEM@ctrvx1.Vanderbilt.Edu (PFEIFFEM_1) writes:

> Buy the way, what freq is your FM transmitter set for anyway? The VHF/UHF
> bands have antennas already constructed for them. You can't home brew a better
> VHF/UHF antenna than you can buy.

So they already have antennas constructed for them!! That doesn't mean that
you can't or shouldn't try a little home construction project of your own. For
a lot of people, a home brew antenna is the only actual construction that they
may ever feel comfortable with. And I'm here to tell ya that a home brew
antenna is every bit as good and sometimes even better than a commercial one.
I know for darned sure that they are less expensive and then there is that
sense of accomplishment--

BTW-- I get the impression that the original poster was not inquiring for
instructions about a ham antenna...

73,
Ken Harrison
N6MHG
email: harrisok@sonoma.edu

Date: Thu, 19 May 94 07:30:55 MST
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!
europa.eng.gtefsd.com!newsxfer.itd.umich.edu!gatech!udel!pacs.sunbelt.net!
lynx.unm.edu!dns1.NMSU.Edu!usenet@network.ucsd.edu
Subject: dBd
To: ham-ant@ucsd.edu

On Wed, 18 May 94 20:17:05 GMT,
Frank Robey <fcr@ll.mit.edu> wrote:
stuff removed

>
>Give me dBi, then I don't have to worry about what you used as a
>reference.
>
>Frank Robey
>fcr@ll.mit.edu

Frank: That is the real point I think, i.e., dBi is a well know and
meaningful reference level where as a dipole reference may not be well
defined in the operational envoriment. If people just want to use a dipole
reference as 2.15 dBi then it seems to me it makes no difference as these
are the same numbers to within a trivial constant, but if they want to use
an actual dipole in place of the antenna to be measured as a reference
then that is a mistaken way to view the problem as what you measure may or

may not be what you need to put in the link equation. For example, if you use a high gain dish on a low elevation path it will reject a multipath signal that arrives below the main beam but a dipole placed at the same spot as the center of the dish will not reject the multipath and the resultant gain figures will go up/down 6dB depending upon the phase of the multipath even though the gain of the dish is not changing. That's way we use dBi !!

Date: Wed, 18 May 94 20:17:05 GMT
From: ihnp4.ucsd.edu!ucsnews!newshub.sdsu.edu!nic-nac.CSU.net!
charnel.ecst.csuchico.edu!olivea!spool.mu.edu!howland.reston.ans.net!noc.near.net!
ll.mit.edu!fcr@network.ucsd.edu
Subject: dBd
To: ham-ant@ucsd.edu

I missed the start of this thread, but I think the difference is in how antenna designers and communications/radar engineers want to view the problem. (although the last posting with inclusions of many earlier postings was a bit confusing in figuring out who advocated what)

All of the texts that I know of on radar performance analysis use gain of an antenna, in free space, relative to an isotropic radiator in the equations. The equations then include propagation factors (F^2 or F^4 depending on circumstances) in order to account for ground (multipath) effects. Objects in the near-field, make the propagation factor that much more difficult to determine. This then allows one to make performance assesment of the radar system for many different environments (e.g. see Skolnik). I have also seen this approach in communications, but I don't have a reference handy.

In the ham literature I see people advocating gain measurements with respect to a dipole. I think that this is the antenna designers point of view. It is meant to keep the designer "honest".

Personally, I feel that publishing gain measurements with respect to a dipole is a shorsighted view. If you want to make use of the gain in a link budget, then the "correction" has to be removed, and putting in the correction only adds a bit of confusion (e.g. what is the gain of the reference dipole). I have seen some people using a factor of 1.5 (1.76 dB) as the gain of an ideal dipole.

Give me dBi, then I don't have to worry about what you used as a reference.

Frank Robey
fcr@ll.mit.edu

Date: Wed, 18 May 1994 20:49:19 GMT
From: ihnp4.ucsd.edu!ucsnews!newshub.sdsu.edu!nic-nac.CSU.net!usc!cs.utexas.edu!
howland.reston.ans.net!vixen.cso.uiuc.edu!milo.mcs.anl.gov!anagram.mcs.anl.gov!
lent@network.ucsd.edu
Subject: suggestions for superstrong mag mount
To: ham-ant@ucsd.edu

I want to attach a high gain mobile antenna to a Cheverolet Astro van without drilling holes. It would also be nice to be able to move it to a hatchback. Will a trunk mount work on a hatchback or the rear doors of an Astro? It seems that the way to go is mag mount. Where can I come up with a mag mount that will hold a 6 1/2 foot antenna? How cheaply? :)

73
kc4zqg
lent@mcs.anl.gov

Date: 19 May 1994 18:57:13 GMT
From: hookup!yeshua.marcam.com!MathWorks.Com!europa.eng.gtefsd.com!
howland.reston.ans.net!vixen.cso.uiuc.edu!airwaves!rrb@ames.arpa
Subject: Thanks (was HELP--Antenna design challenge)
To: ham-ant@ucsd.edu

Thanks to everyone who responded to my desperate plea for help with pulling in a weak signal in the shadow of a strong one. Below is a brief summary of points that folks made, followed by acknowledgements.

The big bad station has completed their test run, and are off the air for a little while. When they come back on, I'll be trying out your suggestions and hoping for success. (I guess I'll never solve the problem with reception in my car, though...) I will let you know the outcome.

(1) Yes, I plan to write to the FCC, but my area is outside the good guys' protected contour, so I don't hold out too much hope.

(2) Yes, the stations are at an angle (but not exactly 90 degrees) to each other with respect to my location. Most people suggested a

directional antenna like a Yagi or log-periodic, or a pair of Yagis stacked vertically or horizontally. (Did "horizontally" mean side by side, or front to back?) Some suggested adding metal screening to help block the strong station. A couple of people worried about multipath signals from the undesired station. I don't think that will be a major problem, as the terrain around me is mostly rolling hills and few tall structures. (I hope I'm right about that...)

It seems to be a consensus that any reasonable antenna solution will emphasize directionality over selectivity.

(3) A couple of people suggested an amplified antenna. I know (and others told me) that that won't help. I had been using one before (bought long ago for another situation) and when the gain is up it pulls in the other nearby college station loud enough to overload the tuner, so I'm sure it won't help here in this case.

(4) If the directional antenna doesn't solve the problem, the next possibility is to construct a "notch filter". I'll need to do some research on the design of such a circuit.

(5) Some folks suggested upgrading the filters in my tuner to improve selectivity, but warned that signal quality would suffer. There are also tuners available that would do this job better than my Adcom.

(6) For sources, there's the ARRL Antenna Handbook and an article in an issue of Audio from some time back describing the stacked-Yagi configuration, and an issue of QST (3/88) describing a filter.

(7) To the "If you can't beat 'em, join 'em" crowd: Thanks, but no thanks. Nothing personal, you understand...

Thanks to whoever posted my request to Airwaves, and to the following respondents by post or e-mail. Anyone else who has anything to add, please feel free.

Clifton Brown <LM13%NEMOMUS.bitnet@ACADEMIC.NEMOSTATE.EDU>

Derek B. Noonburg <derekn@vw.ece.cmu.edu>

Jamie Hanrahan, Kernel Mode Systems <jeh@cmkrnl.com>

P.Bennett <bennett@erich.triumf.ca>

/S=Booth/G=T/I=G/OU=MSMAIL/O=DEN.MMAG/PRMD=MMC/ADMD=TELEMAIL/C=US/
@x400.den.mmc.com (T. G. Booth)

Bob Neidorff <neidorff@uicc.com>

John <CC015012@BROWNVN.BROWN.EDU>

Dennis.Smith@EBay.Sun.COM (Dennis Smith)

Adolf Holmes <aholmes@ULTRIX.RAMAPO.EDU>

Mike Strand <MSTRAND@delphi.com>

Neil Griffin <J735%NEMOMUS.bitnet@ACADEMIC.NEMOSTATE.EDU>

Simon Frech, Redwood Community Radio Inc -- KMUD <kmud@IGC.APC.ORG>
Robert Carpenter <rc@itchy.ncsl.nist.gov>
UASR74A@prodigy.com (Jack Schnapper)
Warren Gaiewski (EE) <gaiewski@sunflash.eng.usf.edu>
Weston.Beal@ebay.sun.com (Weston Beal)
agwing@astro.ocis.temple.edu (Andrew Wing)
babb@k2.sanders.lockheed.com (Scott Babb)
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mlyon@rahul.net (mike lyon)
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ren@rap.ucar.EDU (Ren Tescher)
rwa@cs.athabascau.ca (Ross Alexander)
sehari@iastate.edu (Babak Sehari)
shawk@panix.com (Sandy Hawkins)
sheldon@planet8.sp.paramax.com (Lee Sheldon)
stevem@w8hd.org (Steve Maki)
upsiu@KING.MCS.DREXEL.EDU (Paul Siu)

--

Matthew Saltzman
Clemson University Math Sciences
mjs@clemson.edu

Date: 19 May 94 21:16:00 GMT
From: news-mail-gateway@ucsd.edu
Subject: unsubscribe
To: ham-ant@ucsd.edu

unsub Ham-Ant@UCSD.EDU lisboa@if1.ufrgs.br

Date: 19 May 94 14:02:32 GMT
From: sdd.hp.com!hpscit.sc.hp.com!cupnews0.cup.hp.com!genem@hplabs.hpl.hp.com
Subject: Using 50ohm Coax instead of 75ohm
To: ham-ant@ucsd.edu

Hi folks,

I would like to install an antenna here at work for standard commercial FM reception. This will require about 150 feet of cable and I have plenty of RG-58 available. Is there any way I can make use of this or should I purchase 75-ohm cable?

The ARRL handbook shows a 50-ohm to 75-ohm Broadband Transformer for using 75-ohm in a 50-ohm station setup, and states it's good for 2..30MHz. Yet, later in the article they said they tested it on VHF.

Do you think I can get away with a couple of these transformers? Or is RG-58 pretty much limited to frequencies below 55MHz?

Thanks,
Gene

--

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+-----+
|Gene Marshall          \- \- \          email: genem@cup.hp.com |
|Hewlett Packard Co., MS 42UN      |          Tel: 408/447-5282 |
|Software Svcs & Tech. Division (SST) | ___o          Fax: 408/447-5039 |
|11000 Wolfe Road          L^ \<._          AA6IY@N6LDL.CA.USA.NOAM |
|Cupertino, CA 95014      (_)/ (_)          CompuServe: 75060,260 |
+-----+
```

Date: 20 May 94 05:26:17 GMT
From: dog.ee.lbl.gov!agate!usenet.ins.cwru.edu!magnus.acs.ohio-state.edu!
slip2-4.acs.ohio-state.edu!gratclif@ucbvax.berkeley.edu
Subject: Why are there no amateur helix antennas?
To: ham-ant@ucsd.edu

I've been tinkering around here building some loop yagis, some logs, and now just starting on a helix. After researching this a bit, I can't for the life of me figure out why this isn't the most popular vhf/uhf antenna for amateurs.

Are there patent restrictions still?

Anyway, I'm trying to start a thread about constructing a few nice helixes (or is that helixs).

My comments.

Linear polarizition seems easy, according to Kraus.
Gain seems 90% of yagi per boom length.
Gain seems 300% of yagi per man hour to build.
Gain seems much more "friendly" to errors.
Bandwidth is much greater.
Matching seems like a no brainer.

The real question seems to be coming up with a good mechanical arrangement to hold the antenna. A boom with spreaders seems like too much work. How about large diameter coil supported only on the top. Something like 1/4" aluminum wire would be nice.

Email or post we can all learn something in the discussion.

greg

Gregory W. Ratcliff
Columbus, Ohio ICBM
In the Air N1697X
On the Air NZ8R

Date: 20 May 94 05:50:02 GMT
From: newstf01.cr1.aol.com!search01.news.aol.com!not-for-mail@uunet.uu.net
Subject: Why are there no amateur helix antennas?
To: ham-ant@ucsd.edu

In article <gratclif.52.2DDC49F8@magnus.acs.ohio-state.edu>,
gratclif@magnus.acs.ohio-state.edu (Gregory W. Ratcliff) writes:

>... I can't for the life of me figure out why this isn't the
>most popular vhf/uhf antenna for amateurs.

>Are there patent restrictions still?

Well, many articles/papers on helical antennas for VHF were written in the 50's and 60's in CQ and QST, especially in VHF For the Radio Amateur and CQ VHF Manual.

Patent restrictions would be irrelevant from the standpoint of building one for amateur use, but...maybe the relative popularity suffers from the fact that (as far as I know) no manufacturer has ever offered a ready-made helix. And perhaps that is due to infringement issues.

Also, the mechanical aspects are a bit trickier. Especially the fact that the helix tends to favor a cantilever support whereas you can hold up a yagi in the middle.

I have built many a helix from 100 MHz to 12 GHz...they're almost magical in that they invariably work right the first time! If you can get past the mechanical stuff, they're definitely the way to go (especially for satellite work, where CP is king).
scott nx7u

Date: 20 May 94 08:34:16 GMT
From: agate!library.ucla.edu!csulb.edu!nic-nac.CSU.net!vax.sonoma.edu!
harrisok@ucbvax.berkeley.edu
Subject: Why are there no amateur helix antennas?
To: ham-ant@ucsd.edu

In article <2rhj2a\$1gs@search01.news.aol.com>, nx7u@aol.com (NX7U) writes:

> I have built many a helix from 100 MHz to 12 GHz...they're almost
> magical in that they invariably work right the first time! If you
> can get past the mechanical stuff, they're definitely the way to go
> (especially for satellite work, where CP is king).

If I remember correctly, there were construction articles on the helix in the 1968 ARRL handbook. (No, I didn't just come up with that off the top of my head. That was one of the first ARRL handbooks I ever saw and the funny looking helix just sort of stuck in my mind! :)

Didn't these also have right and left hand polarization? And wasn't the loss from one to the other (RH v LH) quite significant?

Ken Harrison
N6MHG
email: harrisok@sonoma.edu

Date: 19 May 94 14:44:53 GMT
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!
vixen.cso.uiuc.edu!aries!hawley@network.ucsd.edu
To: ham-ant@ucsd.edu

References <2o5ab6\$71o@pace2.cts>, <2rbsp6\$1j6@search01.news.aol.com>,
<2re0la\$4pt@news.CCIT.Arizona.EDU>du
Subject : Re: Ladder Line

hlester@nelson.as.arizona.edu (Howard Lester) writes:

>In article <2rbsp6\$1j6@search01.news.aol.com> leen2kks@aol.com (Lee N2KKS)

writes:

>>You can get this ladder line from: The Radio Works (804)-484-0140. They are a
>>mail order firm in Portsmouth, Va

>You can get far better quality ladder line from The Wireman, in South Carolina.
>He advertises (usually) in QST, at least - I don't have his 800 number handy,
>sorry. Yeah - free call, whereas Radio Works is not. Call 1-800-555-1212 for
>the number.

>Howard

How is it better? Radio Works has the 16 gauge ladder line, etc.
Just asking.
Chuck Hawley KE9UW Urbana, Illinois

Date: 19 May 94 23:38:45 GMT
From: agate!howland.reston.ans.net!usc!nic-nac.CSU.net!news.Cerritos.edu!
news.Arizona.EDU!nelson.as.arizona.edu!hlester@ucbvax.berkeley.edu
To: ham-ant@ucsd.edu

References <2rgdl5\$kfd@news.CCIT.Arizona.EDU>, <hawley.769377021@aries>,
<2rgic8\$g08@vixen.cso.uiuc.edu>new
Subject : Re: Ladder Line

In article <2rgic8\$g08@vixen.cso.uiuc.edu> ignacy@uiuc.edu (Ignacy Misztal)
writes:

>
>Does any variety that you list have good insulation so that the cable
>can touch gutters without side effects other than capacitive coupling?
>I know that TV cables are manufactured with thin and thick
>insulation.

That capacitive coupling (or is it really inductive coupling?) is a serious
enough side effect with metal gutters. If the line touches the gutter, you
run the risk of unbalancing the entire antenna system. Other than that,
the insulations on these wires SEEM to be pretty serious, and I wouldn't
THINK you'd start any fireworks.... Anyway, you really have to try your best
at keeping the line some two spacings away from most runs of metal. One
spacing = the distance between the ladder line's two wires.

Howard

Date: 19 May 94 19:50:21 GMT
From: dog.ee.lbl.gov!agate!howland.reston.ans.net!vixen.cso.uiuc.edu!aries!
hawley@ucbvax.berkeley.edu

To: ham-ant@ucsd.edu

References <2re0la\$4pt@news.CCIT.Arizona.EDU>, <hawley.769358693@aries>,
<2rgdl5\$kfd@news.CCIT.Arizona.EDU>Ü
Subject : Re: Ladder Line

hlester@nelson.as.arizona.edu (Howard Lester) writes:

>In article <hawley.769358693@aries> hawley@aries.scs.uiuc.edu (Chuck Hawley)
writes:

>>

>>>Howard

>>How is it better? Radio Works has the 16 gauge ladder line, etc.

>>Just asking.

>>Chuck Hawley KE9UW Urbana, Illinois

>I needed to elaborate: my direct comparision between the two is with 300 ohm
>ladder line. That from The Radio Works seems like ordinary tv-store bought
>twin lead with rectangular windows punched out of the dielectric. The wire
>is your basic 7 strands of 22 gauge wire - at least that's how it appears.
>That from the Wireman is very strong, many stranded and tightly wound wire.
>It's the wire inside that is so different. Now, I do have 450 ohm ladder line
>purchased from The Radio Works, and its wire is solid, not stranded, and
>should be plenty good. I've got some emotion tied up in all this, as I've
>had bad luck with some Radio Works products.

>Howard

Oh...300ohm. Well they have 450 in solid and stranded, 18 and 16 ga
respectively. They also have 300 ohm KW twinlead. But who cares?
So does Wireman. I like 'em both...the people that is. I suppose you
could get into a heated discussion with them tho if one of their baluns
cooked and broke your pin diodes. I have used one of those remote baluns
for years, but it seems to have changed color....I just switched to the
160 Meter bigger current balun. Friends of mine have had both kinds heat
up with ladder line into the balun and then to a tuner on certain bands.
I have just about convinced myself that a balanced tuner with an RG 8
coax balun on the input is the safest way to go. Or the KW matchbox if
you don't need 160M.
So what did you try of theirs? I wish someone would make a 160 Meter
KW matchbox....with the dual differential capacitor on the output. Walt
Maxwell ("Reflections") says you don't need the split cap....does nothing.
What do you all say?
Chuck Hawley KE9UW Urbana,Illinois

End of Ham-Ant Digest V94 #149
